

1 CLAIMS

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3 I Claim:

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5 1. An implement pitch-yaw system, comprising:  
6 a support structure;  
7 an implement structure pivotally attached to said support structure;  
8 a connecting member slidably attached to said support structure;  
9 a first yaw actuator and a second yaw actuator attached between said implement  
10 structure and said connecting member; and

11 a pitch actuator attached between said connecting member and said support  
12 structure.  
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15 2. The implement pitch-yaw system of Claim 1, wherein said support structure  
16 is attachable to a vehicle.  
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19 3. The implement pitch-yaw system of Claim 1, wherein said support structure  
20 has an elongate structure.  
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23 4. The implement pitch-yaw system of Claim 3, wherein said support structure  
24 has a cavity for receiving said pitch actuator.  
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27 5. The implement pitch-yaw system of Claim 3, including a slide structure  
28 slidably positioned about said support structure, wherein said connecting member is  
29 attached to said slide structure.

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3           6. The implement pitch-yaw system of Claim 1, wherein said connecting  
4 member has a winged structure, wherein said first yaw actuator and said second yaw  
5 actuator are attached to opposing portions of said connecting member.

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8           7. The implement pitch-yaw system of Claim 6, wherein said connecting  
9 member is centered along a longitudinal axis of said support structure.

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12           8. An implement pitch-yaw system, comprising:  
13           a support structure;  
14           an implement structure pivotally attached to said support structure;  
15           a connecting member slidably attached to said support structure;  
16           a first yaw actuator and a second yaw actuator attached between said implement  
17 structure and said connecting member;  
18           a pitch actuator attached between said connecting member and said support  
19 structure; and  
20           a control unit in communication with said first yaw actuator, said second yaw  
21 actuator and said pitch actuator for controlling the same.

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24           9. The implement pitch-yaw system of Claim 8, wherein said support structure  
25 is attachable to a vehicle.

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28           10. The implement pitch-yaw system of Claim 8, wherein said support  
29 structure has an elongate structure.

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3        11. The implement pitch-yaw system of Claim 10, wherein said support  
4 structure has a cavity for receiving said pitch actuator.  
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7        12. The implement pitch-yaw system of Claim 10, including a slide structure  
8 slidably positioned about said support structure, wherein said connecting member is  
9 attached to said slide structure.  
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12        13. The implement pitch-yaw system of Claim 8, wherein said connecting  
13 member has a winged structure, wherein said first yaw actuator and said second yaw  
14 actuator are attached to opposing portions of said connecting member.  
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17        14. The implement pitch-yaw system of Claim 13, wherein said connecting  
18 member is centered along a longitudinal axis of said support structure.  
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21        15. A method operating an implement pitch-yaw system having a support  
22 structure, an implement structure pivotally attached to said support structure, a  
23 connecting member slidably attached to said support structure, a first yaw actuator and  
24 a second yaw actuator attached between said implement structure and said connecting  
25 member, and a pitch actuator attached between said connecting member and said  
26 support structure, said method comprising the steps of:

- 27        (a) determining whether a pitch forward condition exists;  
28        (b) extending said pitch actuator if said pitch forward condition exists;  
29        (c) determining whether a pitch rearward condition exists; and

1 (d) retracting said pitch actuator if said pitch rearward condition exists.

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3 16. The method of operating an implement pitch-yaw system of Claim 15,  
4 including the following steps:

5 (e) determining whether a yaw condition exists; and

6 (f) extending or retracting said first yaw actuator and said second yaw actuator  
7 if said yaw condition exists.

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9 17. The method of operating an implement pitch-yaw system of Claim 15,  
10 wherein said support structure has an elongate structure.

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13 18. The method of operating an implement pitch-yaw system of Claim 17,  
14 wherein said support structure has a cavity for receiving said pitch actuator.

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17 19. The method of operating an implement pitch-yaw system of Claim 17,  
18 including a slide structure slidably positioned about said support structure, wherein  
19 said connecting member is attached to said slide structure.

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22 20. The method of operating an implement pitch-yaw system of Claim 15,  
23 wherein said connecting member has a winged structure, wherein said first yaw  
24 actuator and said second yaw actuator are attached to opposing portions of said  
25 connecting member.

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